ABSTRACT

A multi-level system for management of a railway system and its operational components in which the railway system has a first level configured to optimize an operation within the first level that includes first level operational parameters which define operational characteristics and data of the first level, and a second level configured to optimize an operation within the second level that includes second level operational parameters which define the operational characteristic and data of the second level. The first level provides the second level with the first level operational parameters, and the second level provides the first level with the second level operational parameters, such that optimizing the operation within the first level and optimizing the operation within the second level are each a function of optimizing a system optimization parameter. The levels can include a railroad infrastructure level, a track network level, a train level, a consist level and a locomotive level.